

**REMARKS**

Claims 1-5 are pending in the application; all claims were rejected in the present Office Action.

The Examiner rejected Claims 1-5 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,802,174 (Hiraiwa). Hiraiwa describes a Viterbi decoder for decoding a convolutional code. Branch metrics are normalized, State metrics are calculated from the normalized Branch metrics, and synchronization and asynchronization are determined on the basis of the degree of increase in the calculated State metrics.

Branches of the Branch metrics, to which Hiraiwa relates, reveal relations between states, i.e., a present state and the next state. Contrary to Hiraiwa, the present invention relates to **Path metrics**, where a path indicates the relation between a first state and the present state and reveals an accumulated metric value of all branches to the present state.

The difference between Branch and Path metrics can be explained as follows:

- for Branch metrics a specific branch is independent of other branches; and
- for Path metrics a specific branch is dependent on the former branch.

Hiraiwa teaches subtracting Branch metrics values over two times, as illustrated in FIG. 1, reference numbers 17 and 18. In reference number 17 of FIG. 1, the minimum of Branch metrics values is subtracted from the Branch metrics values. In reference number 18 of FIG. 1, the minimum of the Branch metrics values is subtracted from the Branch metrics values if the minimum value is equal or larger than a predetermined value N.

Contrarily, in the present invention, the subtraction is performed by the steps of:

- selecting or detecting survival Path metrics values or competition Path metrics values to be subtracted among Path metrics values (which is as a concept including both of survival Path metrics values and competition Path metrics values);

- selecting the minimum one from among the selected Path metrics values; and,

- subtracting the selected minimum value from the selected Path metrics values if the selected minimum value is larger than a predetermined value. This is set forth and claimed in Claims 1, 3, and 5.

Similarly, with regard to apparatus Claims 2 and 4, a comparator is used to perform the steps of:

selecting or detecting survival Path metrics values or competition Path metrics values to be subtracted among Path metrics values (which is as a concept including both of survival Path metrics values and competition Path metrics values), and

selecting the minimum one from among the selected Path metrics values;  
and subtracters are used for subtracting the selected minimum value from the selected Path metrics values if the selected minimum value is larger than a predetermined value.

It can therefore be concluded that while Hiraiwa performs the subtraction over several times, the present invention performs the subtraction only once. Therefore, Hiraiwa neither teaches nor describes a method for normalizing metric values in a decoder, which uses a plurality of metric values of a next state, with each metric value having at least a survival **Path metric** value and a competition **Path metric** value. Hiraiwa neither teaches nor describes detecting the survival Path metric values selected out of the survival path and competition Path metric values.

Based on the arguments presented above with respect to Claims 1-5, withdrawal of the rejection under 35 U.S.C. §102(b) is respectfully requested. Accordingly, all of the claims pending in the Application, namely, Claims 1-5, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,



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